PITTSBURGH

PIRATES

Dear Jane

I am very concerned about livestock getting antibiotics, it may be good for them, but I am sure its not good for me. I am enclosing an article about it also.

Thank You
Daniel Mike Augustine

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Kirk Smith found drug-resistant microbes in a fifth of chicken products he tested.

Do livestock breed drug-resistant bugs?

Antibiotics on farms may threaten humans

BY AMANDA SPAKE

PUBLIC HEALTH

Kirk Smith has chicken on his mind. Chicken, that is, that the Minnesota epidemiologist purchased in his local supermarkets.

Smith's analysis of bacteria in that poultry, published last week in the *New England Journal of Medicine*—along with unpublished data from the Centers for Disease Control and Prevention—gives new scientific heft to earlier research linking antibiotic use in agriculture to drug-resistant pathogens in animals. Further, the findings point to an alarming corollary: Resistant strains threaten medicine's ability to treat human disease.

Most troubling are antibiotics approved for animal use that belong to the same classes of drugs needed for curing people. These include all of the fluoroquinolones, vancomycin, and a new drug, Synercid, soon to be approved by the U.S. Food and Drug Administration. Farmers use the drugs to spur faster growth and treat livestock diseases. But while most bacteria exposed to the antibiotics are killed, at least a few survive. These resistant bugs multiply and can be passed to humans through raw or undercooked food, water, and manure. According to an editorial accompanying the *NEJM* report, "decades of [antibiotic] use in animals have created a huge reservoir of resistant bacteria . . . with a potential to spread to humans."

From 1992 to 1998, Smith and others at the Minnesota Department of Health studied bacterial cultures from residents infected by *Campylobacter jejuni*, a microbe that causes an estimated 2 million to 8 million cases of gastroenteritis in the United States annually. In 1992, only 1.3 percent of Minnesota's cases were caused by strains of campylobacter that were resistant to fluoroquinolones, among the most useful drugs for treating serious foodborne infections. By 1998, resistance had grown to 10.2 percent.

Smith realized that about 75 percent of the resistant cases in 1996-97 were associated with foreign travel. A little more medical sleuthing showed that about half of those travelers had been to Mexico, where fluoroquinolone use in poultry increased almost fourfold between 1993 and 1997.

Chickens fingered. But a significant number of Minnesotans who had stayed home also developed resistant infections, particularly from 1996 to 1998. Enter the chickens: Two fluoroquinolone drugs had been approved for treating E. coli in U.S. chickens in 1995 and 1996. Out of 91 chicken products Smith purchased from 16 supermarkets and analyzed for the new study, 80 were contaminated with campylobacter. Twenty percent of these bugs were resistant to ciprofloxacin, a fluoroquinolone often used for treating severe gastroenteritis. DNA fingerprinting matched resistant strains from the chickens to resistant strains in sick Minnesotans.

Vancomycin-resistant enterococci, or VRE—a bug resistant to nearly all available antibiotics—has also become a serious problem. First found in Europe, where its spread was linked to an antibiotic growth promoter, VRE arrived here in the 1990s and has proved deadly in many U.S. hospitals. Searching for a cure, the pharmaceutical company Rhône-Poulenc Rorer developed Synercid.

But according to CDC scientists, a related antibiotic, virginiamycin, used since 1974 in chickens has spread bugs that are resistant to Synercid even before the drug is approved. Examining bacteria from human stool samples, the researchers found that some individuals already carry Synercid-resistant bugs. And an analysis of chicken products from three states showed that Synercid-resistant enterococci contaminated more than half the products, says CDC's Fred Angulo, who will present the data this week in Washington, D.C.

By the end of summer, the FDA plans to complete an assessment of the dangers posed by fluoroquinolone-resistant campylobacter. The agency is also drafting new regulations that may radically restrict how animal antibiotics are tested and used in the future. John Keeling of the Animal Health Institute, a pharmaceutical trade group, says no action should be taken until more data demonstrate a significant risk to humans. But five consumer groups, led by the Center for Science in the Public Interest, believe we already know enough: They have petitioned the FDA to ban antibiotics used for animal-growth promotion that are needed to treat human illness. ■

LAYNE KENNEDY FOR *USN&WR*

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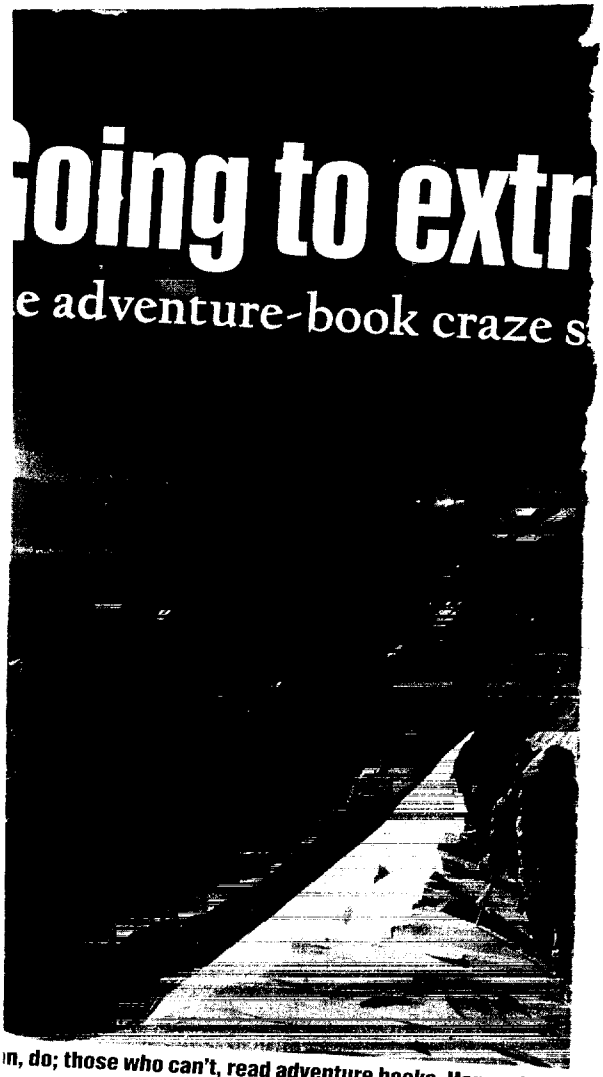

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LYNN ROSELLINI

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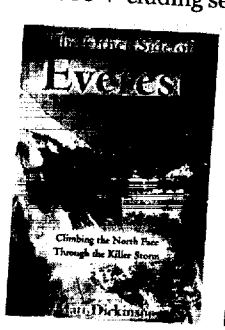

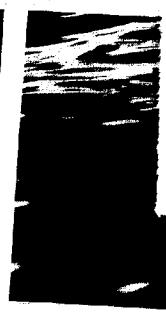

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...Atlantic Monthly Press offers *Dark Wind: A Survivor's Tale of Love and Loss*, a story about what happens to two lovers who enjoy "a whirlwind, midlife